mortality rate at 5 years following treatment as well as recurrence rates following chemo-radiation. **CONCLUSIONS:** Cost-utility analysis comparing chemo-radiation to cystectomy as primary treatment for MIBC reveals that chemo-radiation is not cost-effective when compared to cystectomy.

PCN121
COST EFFECTIVENESS OF DIFFERENT DIGITAL MAMMOGRAPHY SCREENING SCENARIOS FOR BREAST CANCER IN THE CANADIAN CONTEXT
Mittmann N[1], Stout N[2], Tosteson A[3], Yaffe M[4]
[1]*Sunnybrook Health Sciences Centre, Toronto, ON, Canada,* [2]*Harvard University, Boston, MA, USA,* [3]*Dartmouth, NH, USA,* [4]*Toronto, ON, Canada*
OBJECTIVES: To determine the value of different mammography screening modalities from the societal context. **METHODS:** The Wisconsin CISNET breast cancer model was adapted to reflect the Canadian context (incidence, resource utilization and unit costs (2012 CAN$)). Predictions were made of age-specific breast cancer incidence for a 1960 birth cohort of 2,000,000 women for a number of screening scenarios varied by age bands (start at 40 or 50 years, end at 69 or 74 years), frequency (annual, biennial, triennial) from a societal perspective. Incremental cost-effectiveness and cost-utility analyses were examined for different screening scenarios compared to the basecase (biennial 50 to 74 years). A 5% discount rate was used. Sensitivity analyses considered screening tool performance, compliance, costs and treatments. Results were expressed for 1,000 women alive at age 40 years. **RESULTS:** Our model showed that all annual screening strategies were found to be more effective than the basecase. The most aggressive annual screening scenario (40 to 74 years) saved the lives of 21 more women per 1,000 than the basecase at an additional $3,800 per woman. Our model predicted that annual screening from age 40 to 74 years had a slightly lower incremental ratio compared to annual 40 to 49, biennial 50 to 74 years when compared to the basecase. Cost drivers were discount rate, screening frequency, utility values, treatment and sensitivity of mammography. **CONCLUSIONS:** The greatest single cost contributor in a screening program is the mammography itself. The more screens that a women receives in her life, the greater the financial cost to society. Because both the life savings and costs rise together almost linearly with the number of lifetime screens per women, the decision on how to screen is mainly related to willingness to pay and avoiding recalling too many women for further examinations after positive screens.

PCN122
VALUE OF INNOVATION IN LEUKEMIA, LYMPHOMA, AND MYELOMA: A SYSTEMATIC REVIEW
Saret CJ[1], Winn A[2], Shah G[1], Parsons SK[1], Lin PJ[1], Cohen JT[1], Neumann PJ[1]
[1]*Tufts Medical Center, Boston, MA, USA,* [2]*University of North Carolina at Chapel Hill, Chapel Hill, NC, USA*
OBJECTIVES: Analyzing the cost-effectiveness of blood cancer-related therapies has become more important as expensive drugs have been introduced. This study reviewed cost-utility analyses (CUAs) of innovative blood cancer-related interventions and examined the number and methodology of studies and the cost-utility ratios. **METHODS:** We analyzed studies related to blood cancers from the Tufts Cost-Effectiveness Analysis Registry (www.cearegistry.org), a database including over 9,800 CEAs published through 2012. We focused on innovative agents and excluded hematopoietic stem cell transplant, symptom management, and supportive care. Studies that met the inclusion criteria were categorized by four cancer types (chronic myeloid leukemia (CML), chronic lymphocytic leukemia (CLL), non-Hodgkin's lymphoma (NHL), and multiple myeloma (MM)) and nine treatment types (α interferon, alemtuzumab, bendamustine, bortezomib, dasatinib, imatinib, lenolidomide, rituximab alone or in combination, and thalidomide). Cost-effectiveness ratios were stratified by funder and cancer type. **RESULTS:** Twenty-nine studies published from 1996-2012 (including 44 cost-effectiveness ratios) met the inclusion criteria. Thirty-one percent were conducted in the US. The majority (62%) used the health care payer perspective; 24% used the recommended societal perspective. Seventy-six percent were industry-funded. In 21%, economic data were collected alongside a clinical trial. Most ratios pertained to NHL (41%) or CML (30%) and to treatment with rituximab (43%), α interferon (18%), or imatinib (16%). Across cancers, the median ratio was highest for CML ($55,000/QALY) and lowest for NHL ($21,500/QALY). Median ratios over time were $35,000/QALY (1996-2002), $52,000/QALY (2003-2006), and $22,000/QALY (2007-2012). A majority of ratios (73%) fell below $50,000/QALY, and most (86%) fell below $100,000/QALY. The median was lower for industry-funded studies ($26,000/QALY) than others ($33,000/QALY). **CONCLUSIONS:** Published CUAs of these blood cancer treatments demonstrate relatively good value. While the treatments may have high unit prices, many also seem to confer considerable health benefits at reasonable overall costs.

PCN123
COST-EFFECTIVENESS OF USING A PROGNOSTIC TEST TO GUIDE TREATMENT DECISIONS IN EARLY STAGE NON-SMALL CELL LUNG CANCER (NSCLC)
Stenehjem D[1], Bellows BK[1], Kaldate RR[2], Jones J[2], Siebert U[3], Brixner D[1]
[1]*University of Utah, Salt Lake City, UT, USA,* [2]*Myriad Genetic Laboratories, Inc., Salt Lake City, UT, USA,* [3]*UMIT – University for Health Sciences, Medical Informatics and Technology / ONCOTYROL / Harvard University, Hall i. T./ Innsbruck / Boston, Austria*
OBJECTIVES: Limited guidance exists for health care providers deciding when to treat patients with adjuvant chemotherapy (ACT) in early NSCLC. This leads to high-risk untreated patients that could benefit, and low-risk patients who could avoid the toxicity and cost, from ACT. This study examined the cost-effectiveness of the prognostic test myPlan Lung Cancer vs. current standard of care (SoC) in directing ACT treatment decisions in stage I/II NSCLC. **METHODS:** A Markov model was created to examine costs (2011 US$) and effectiveness (quality-adjusted life-years [QALYs]), from a US third-party payer perspective over a lifetime horizon. Patients were classified as high or low risk based on a prognostic score derived from stage and an expression signature based on cell cycle progression. The probability of receiving ACT was estimated from a physician survey. Benefit of ACT treatment was based on stage and prognostic score. Other model inputs were literature-derived or assumption-based. Costs and QALYs were discounted at a 3% annual rate. One-way and probabilistic sensitivity analyses examined the relative impact of model inputs. **RESULTS:** In the base case scenario 44% of patients received ACT using the prognostic test vs. 38% based on SoC. Total costs were $131,287 and $125,594 and total QALYs gained were 5.33 and 5.16 for the prognostic test and SoC, respectively. The incremental cost-effectiveness ratio (ICER) for the prognostic test was $34,055/QALY gained. One-way sensitivity analyses indicated the probability of receiving ACT for high-risk, stage Ib patients and the ACT treatment benefit were the largest drivers of cost-effectiveness. The probabilistic sensitivity analysis ICER was $44,196/QALY gained. The prognostic test was cost-effective in 51.1% of the simulations at a willingness-to-pay threshold of $50,000/QALY gained. **CONCLUSIONS:** The results of this study suggest that using myPlan Lung Cancer to guide ACT decisions is cost-effective compared to a SoC approach according to globally accepted thresholds.

PCN124
ESTIMATION OF THE QUALITY ADJUSTED PROGRESSION FREE SURVIVAL OF THE TREATMENT ARMS OF THE BOLERO-2 TRIAL
Ali AA[1], Adunlin G[1], Tawk R[2], Diaby V[1]
[1]*Florida A&M University, Tallahassee, FL, USA,* [2]*Florida A&M University, Tallahasssee, FL*
OBJECTIVES: The Breast Cancer Trials of Oral Everolimus-2 (BOLERO-2) is a double-blind, phase 3 trial that compared Everolimus plus Exemestane (n = 485) versus placebo plus Exemestane (n=239). Postmenauposal women with advanced hormone receptor positive breast cancer (ABC) were included in the study. The trial demonstrated that Everolimus plus Exemestane significantly prolonged progression-free survival (PFS). PFS as an outcome measure to compare treatment strategies for ABC is incomplete as it fails to account for the quality of life of patients living in that disease state. To address this issue, researchers can estimate the quality adjusted progression free survival (QAPFS) of treatments as an effectiveness measure. This study aims to estimate the QAPFS of the treatment arms of the BOLERO-2 trial. **METHODS:** For each treatment arm of the trial, QAPFS was estimated by multiplying the overall health utility weights associated with PFS (taking into consideration disutlities associated with the adverse events of treatments) by the corresponding mean PFS time. Health utility data were obtained from the literature, while mean PFS times were estimated through the survival analysis of the reconstructed individual patient data of the BOLERO-2 trial. **RESULTS:** Progression free survival (robust mean; (95% robust confidence interval) was 44.73 weeks (41.03; 48.43) for Evrolimus + Exemestane and 22.98 weeks (19.88; 26.08) for Placebo + Exemestane. The QAPFS (robust mean, (95% robust confidence interval) for the treatment arms of the trial were respectively 1.67 (1.53; 1.81) for Evrolimus + Exemestane and (0.78; 1.02) for Placebo + Exemestane. **CONCLUSIONS:** Using QAPFS as the outcome measure provides a better assessment of the benefit induced by the treatment arms of the BOLERO-2 trial. The benefit of Everolimus + Exemestane over Placebo + Exemestane observed in the trial was maintained in this analysis. The estimates obtained as part of our analysis can be used in future cost effectiveness studies.

PCN125

WITHDRAWN

PCN126
COST-UTILITY ANALYSIS OF ENZALUTAMIDE FOR PATIENTS WITH PREVIOUSLY TREATED METASTATIC CASTRATION-RESISTANT PROSTATE CANCER (MCRPC)
Vicente C[1], Babashov V[1], Husein F[2], Saad F[3], Naidoo S[4], Holmstrom S[5]
[1]*PIVINA Consulting Inc., Mississauga, ON, Canada,* [2]*Astellas Pharma Canada Inc,* [3]*CHUM,* [4]*Astellas Pharma Europe Ltd, Chertsey, UK,* [5]*Astellas Pharma Europe, Leiderdorp, The Netherlands*

OBJECTIVES: mCRPC is a terminal disease, with a median survival of approximately 1 to 2 years. The AFFIRM study demonstrated that enzalutamide is highly efficacious, prolonging overall survival and progression-free survival compared to placebo in patients with mCRPC previously treated with docetaxel-based chemotherapy. The purpose of this analysis is to assess from the Canadian perspective the cost-effectiveness of enzalutamide 160mg once-daily compared with abiraterone acetate (AA) (+ prednisone) and intravenous (IV) cabazitaxel in mCRPC patients previously treated with docetaxel-based chemotherapy. **METHODS:** A Markov model was developed to capture time spent by patients in various health states, including progression, progression free survival (PFS) and death. Results were reported as incremental costs per additional quality adjusted life-years (QALY) gained over a 10-year period. Transition probabilities were derived from patient-level data from AFFIRM and an indirect treatment comparison from available published literature. The base case analysis focused on direct medical costs from the perspective of the Canadian Ministry of Health (MoH), with the second analysis focusing on the societal perspective. Cost data for 2013, obtained from a variety of sources were reported as Canadian Dollars. A 5% discount rate was applied to both costs and patient outcomes. Multiple sensitivity analyses were undertaken to test the robustness of the model **RESULTS:** From the MoH perspective, enzalutamide had an incremental cost-utility ratio (ICUR) of $42,325 and $43,105 per additional QALY gained compared to AA and cabazitaxel, respectively. Results were similar from the societal perspective. Results were robust over a wide range of one-way and probabilistic sensitivity analyses. In greater than 85% of iterations the incremental cost-effectiveness ratio ICER was below a willingness-to-pay threshold of $100,000 per QALY for the comparison versus either AA or cabazataxel. **CONCLUSIONS:** Enzalutamide is a cost-effective treatment compared to AA and cabazitaxel in mCRPC patients previously treated with docetaxel-based chemotherapy

PCN127

COST-UTILITY ANALYSIS OF NEWER HER2- TESTING TECHNOLOGIES TO TARGET TRASTUZUMAB IN THE ADJUVANT BREAST CANCER SETTING

Ferrusi IL[1], Kulin NA[2], Goeree R[1], Leighl N[3], Pullenayegum EM[4], Phillips K[5], Marshall D[2]
[1]*McMaster University, Hamilton, ON, Canada,* [2]*University of Calgary, Calgary, AB, Canada,* [3]*Ontario Cancer Institute, Toronto, ON, Canada,* [4]*Hospital for Sick Children, Toronto, ON, Canada,* [5]*University of California, San Francisco, San Francisco, CA, USA*

OBJECTIVES: We estimated the incremental cost-utility of newer chromogenic or silver in situ hybridization (CISH, SISH) techniques vs. fluorescence-based methods (FISH) to diagnose human epidermal growth factor receptor-2 positive (HER2+) breast cancer (BC) and direct targeted adjuvant trastuzumab using decision-analytic modelling. Newer CISH and SISH may be more widely useful in pathology practice owing to the use of light (vs. fluorescence) microscopy. **METHODS:** A decision tree represented 6 alternative test-treat strategies to direct adjuvant trastuzumab in HER2+ early-stage BC. The strategies consisted of primary CISH, FISH or SISH testing, or, primary immunohistochemistry (IHC) with CISH, FISH or SISH confirmation of IHC equivocal results only. We assumed FISH as gold standard, with trastuzumab treatment for IHC+ or FISH+. A Markov model of early-stage BC estimated the sequela of treatment based on test results by accounting for true HER2 status in the lifetime horizon from the payer's perspective. Treatment effect and test accuracy parameters were informed by meta-analyses. Uncertainty was characterized using probabilistic sensitivity analyses and cost-effectiveness acceptability curves. **RESULTS:** Primary FISH testing was dominant in the base case, assuming 20% HER2+ disease prevalence, decreasing costs by a mean of $815 and improving outcomes by 0.0022 QALYS compared to the referent strategy of primary IHC with FISH confirmation of IHC equivocal results. After HER2+ disease prevalence, results were most sensitive to test sensitivity and specificity parameters. Primary FISH, CISH or SISH strategies had higher probabilities of being cost-effective than primary IHC strategies. **CONCLUSIONS:** Our results suggest that the additional costs of primary in situ hybridization testing are offset in the long-term by improved health outcomes. The significant uncertainty attributed to test accuracy parameters suggests that additional research is needed to determine whether newer CISH or SISH can perform equivalently to FISH for HER2 status determination.

PCN128

THE COST-EFFECTIVENESS OF 2ND LINE CRIZOTINIB IN EML4-ALK REARRANGED ADVANCED NSCLC IN ONTARIO

Djalalov S[1], Graham DM[2], Beca J[1], Hoch JS[3], Tsao MS[4], Cutz JC[5], Leighl N[4]
[1]*St. Michael's Hospital, Toronto, ON, Canada,* [2]*Princess Margaret Hospital, Toronto, ON,* [3]*University of Toronto, Toronto, ON, Canada,* [4]*Ontario Cancer Institute, Toronto, ON, Canada,* [5]*McMaster University, Hamilton, ON, Canada*

OBJECTIVES: Targeted therapy with ALK inhibitor crizotinib offers significant improvement in clinical outcome for treatment of EML4–ALK fusion positive non-small cell lung cancer (NSCLC) patients. We estimated the cost-effectiveness of companion EML4-ALK genetic testing in combination with crizotinib treatment in the second-line setting for advanced NSCLC in Ontario. **METHODS:** We performed a cost-effectiveness analysis using a Markov model from a Ministry of Health perspective and a lifetime horizon. Transition probabilities and mortality rates were calculated based on the data of a recent second-line randomized trial of crizotinib versus chemotherapy (Shaw et al. New Engl J Med 2013). Costs were obtained from OCCI database, public labs and Princess Margaret Hospital. All parameters were varied separately in one-way and selected two-way sensitivity analyses. Various scenarios to assess the impact of model assumptions about testing and treatment were conducted. **RESULTS:** The use of pemetrexed and docetaxel in ALK-rearranged NSCLC, based on our preliminary model, could yield as much as 0.539 QALY and 0.429 QALY respectively, assuming no crossover from chemotherapy to crizotinib. Average costs per patient based on the preliminary model are estimated at CAD $19,388 for pemetrexed and $$33,226for docetaxel, with incremental cost-effectiveness ratios of $333,595/QALY and $125,812/QALY gained respectively. The results of the one-way sensitivity analysis indicated that the primary drivers of the ICER were the utilities and cost of crizotinib treatment. The model was least sensitive to IHC and FISH genetic test costs, re-biopsy cost, probability of progression while on pemetrexed treatment and probability of re-biopsy. **CONCLUSIONS:** EML4–ALK genetic testing in combination with crizotinib treatment for all NSCLC patients eligible for chemotherapy is not economically attractive in the current setting. Lower drug costs would be required to make this strategy economically feasible.

PCN129

COMPARATIVE COSTS AND EFFECTIVENESS OF MINDFULNESS-BASED ART THERAPY TO USUAL SUPPORT FOR WOMEN WITH CANCER: RESULTS FROM A RANDOMIZED CLINICAL TRIAL

Pizzi LT[1], Morlino AM[1], Kash KM[2], Newberg A[1], Matthews MJ[1], Monti D[1]
[1]*Thomas Jefferson University, Philadelphia, PA, USA,* [2]*KM Behavioral Consulting, Spring Hill, FL, USA*

OBJECTIVES: Compare the costs and effectiveness of a nonpharmacologic intervention, mindfulness-based art therapy (MBAT) aimed at psychological stress reduction for women with breast cancer. **METHODS:** Participants were randomized into three groups: MBAT, Usual Breast Cancer Support (BCSG), or Untreated Control (UC). The MBAT intervention involved mindfulness-based stress reduction techniques along with art therapy. BCSG provided didactic lectures and discussion among participants. Each group attended programs for 8 weeks, for 2 ½ hours each week. Follow-up was done at 9 weeks. Health care costs due to psychological problems were captured in the form of health care utilization, including outpatient calls to physicians, outpatient visits, emergency room visits, and inpatient admissions, as well as cost of medications. Effectiveness was measured using health utility deduced from the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36). **RESULTS:** The number of women in each group was: 98 completing MBAT, 93 completing BCSG, 44 UC. Mean health care costs due to psychological problems decreased at 9 weeks in the MBAT group (from $98.96/month to $0.00/month), increased in BCSG (from $3.60/month to $32.06/month), and stayed consistent with no health care utilization in UC. Medication costs decreased in all 3 groups at 9 weeks (MBAT: $50.23/month to $6.40/month; BCSG: $48.87/month to $13.69/month; UC: $46.80/month to $24.63/month). Health utility (mean,SD) increased at week 9 in all groups: MBAT from 0.47(.085) to 0.50(.076); BCSG from 0.50(.086) to 0.52(.084); UC from 0.52(.086) to 0.55(.058). **CONCLUSIONS:** All groups experienced similar utility improvements at 9 weeks, suggesting that the decision as to whether to choose MBAT, BCSG, or UC should be based on costs. However, these data are short-term and should be interpreted cautiously since sustained quality of life is important to the decision. Findings suggest that MBAT may reduce health care costs due to psychological problems but a larger sample is necessary to confirm this.

PCN130

COST-EFFECTIVENESS OF TARGETED THERAPEUTICS IN METASTATIC RENAL CELL CANCER SEEN FROM TWO DIFFERENT ECONOMIC PERSPECTIVES

Mihajlović J, Postma MJ
University of Groningen, Groningen, The Netherlands

OBJECTIVES: To assess the cost-effectiveness of first line metastatic renal cell cancer (mRCC) drugs from the perspective of two different economic and clinical settings, The Netherlands (NL) and Serbia (SRB). **METHODS:** The research included all first line mRCC therapeutics recommended by the European and American guidelines: sunitinib, pazopanib, bevacizumab and temsirolimus. Clinical efficacy data were extracted from published pivotal and head-to-head studies. Costs were described with regards to the treatment protocols of NL and SRB. A Markov model was designed to incorporate efficacy and costs data per each therapeutic alternative. An annual discount rate of 1.5% for health and 4% for costs was applied and a health care perspective was taken. Probabilistic sensitivity analysis (PSA) was performed to test the uncertainty around the base-case estimate. **RESULTS:** With the incremental cost-effectiveness ratio (ICER) of €44,512 and €39,625/QALY in NL and SRB respectively, sunitinib was the most cost-effective therapeutic alternative, followed by pazopanib, temsirolimus and bevacizumab. Incremental costs were comparable in SRB and NL and mainly controlled by the drugs' price. All estimated ICERs appeared lower within Serbian economic surrounding. PSA revealed a wide confidence interval around the base-case ICERs highly dependent on potential gain in overall survival (OS). **CONCLUSIONS:** The base-case ICERs calculated for NL were below the commonly accepted threshold recommended by WHO (three times national GDP per capita for QALY or €95,700/QALY in NL), indicating the relative cost-effectiveness of examined mRCC drugs. However, none of these pharmaceuticals could be regarded as cost-effective under the same criterion in SRB (threshold of €14,400/QALY). Although between-the-setting variation resulted in lower ICERs in SRB, this could not compensate for the sevenfold difference in countries' incomes. Finally, two main parameters that might increase cost-effectiveness of mRCC drugs in mid-income countries seem to be the drug prices and their potential benefit in OS.

PCN131

COST-EFFECTIVENESS OF PAZOPANIB VERSUS SUNITINIB IN EGYPTIAN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA FROM THE HEALTH INSURANCE PERSPECTIVE: A MARKOV MODEL

Elsisi G, Hassouna A, Abu Taleb A, Elmahdawy M, Ibrahim S
Central Administration for Pharmaceutical Affairs, Cairo, Egypt

OBJECTIVES: Cost-effectiveness of pazopanib versus sunitinib in Egyptian patients with metastatic renal cell carcinoma has not yet been established. The aim of the present study was to evaluate the cost-effectiveness of pazopanib versus sunitinib in Egyptian patients with metastatic renal cell carcinoma over a ten-year period from the perspective of the health insurance. **METHODS:** A cohort Markov chain model with three health states (first line until progression, progression, and death) based on Egyptian clinical practice was derived from published sources. The length of a cycle was set at six weeks. The clinical parameters were derived from randomized trial previously published. The quality of life of the health states was derived using the available published data. Direct medical costs were obtained from the health insurance tariff in Egypt. All costs and effects were discounted at 3.5% annu-